

ADDITIONS TO THE FLORA OF COLORADO – VI

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The previous installment of this series appeared in *Southwestern Naturalist* 18(3):317-329. 1973. Entries are presented under the following topics: Novelties and new combinations; New Colorado records, indigenous species, adventive species; Re-evaluations and reinstatements; and Rejections. Unless otherwise specified, herbarium documentation of these reports is in Herbarium COLO.

Novelties and New Combinations

ALNUS TENUIFOLIA Nutt. *forma* **INCISA** W.A. Weber, *f. nov.* *Folia inciso-pinnatifida, planta caeterum speciei similis.* HOLOTYPE: Colorado, Summit Co.: Blue River, Knorr Ranch, wet area along stream, several trees present, 12 Sept. 1977, P.F. Gilbert COLO 310669. Isotype AAH.

ANEMONASTRUM NARCISSIFLORUM (L.) Holub *ssp.* **ZEPHYRUM** (A. Nels.) W.A. Weber, *comb. nov.* *Anemone zephyra* A. Nels., Bot. Gaz. 42:52. 1906. I agree with Holub in his segregation of the genera formerly included in *Anemone* but suspect he was not familiar with this taxon which he treated at the species level. Other authors agree in giving it only sub-specific rank.

ANEMONE MULTIFIDA Poir. *ssp.* **SAXICOLA** (Boivin) W.A. Weber, *comb. nov.* *A. multifida var. saxicola* Boivin, Canad. Field-Nat. 65:2. 1951. This subspecies is strictly alpine, with ochroleucous flowers, the tepals tinged dorsally with blue. Plants are lower in stature than in the common montane and subalpine race and they occur in only a few of the most mesic and floristically relictual alpine tundra stations. The taxon was originally described from the Canadian Rocky Mountains, and its Colorado distribution fits that of other northern disjuncts in Colorado.

BOLOPHYTA LIGULATA (Jones) W.A. Weber, *comb. nov.* *Parthenium alpinum var. ligulatum* Jones, Contr. West. Bot. 13:16. 1910. *Parthenium ligulatum* Barneby, Leaf. West. Bot. 5:20. 1947.

BOLOPHYTA TETRANEURIS (Barneby) W.A. Weber, *comb. nov.* *Parthenium tetraneuris* Barneby, Leaf. West. Bot. 5:19. 1947. *Parthenium alpinum var. tetraneuris* Rollins, Contr. Gray Herb. 172:69. 1950. Rollins (1950) took a conservative view of the genus *Parthenium*, placing the three pulvinate desert species in subgenus *Bolophytum*. He demonstrated that floral morphology is surprisingly uniform throughout *Parthenium* and that chromosome numbers are compatible with a single genus concept. Nevertheless, throughout his discussion, the *Bolophytum* group displayed anomalous features. Geographically it is confined to gypsum soils in the Rocky Mountain region, the pulvinate habitus is unique, and the combination of monocephaly, sessile or nearly sessile unusually large capituli, suggest that the group had split

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away from the main line of evolution at a remote period, and by equal logic may be considered a genus in its own right. As a genus, the group takes the name *Bolophyta*, based on *B. alpina* Nutt.

ERIGERON FLAGELLARIS Gray *forma* **BREVILIGULATUS** W.A. Weber, *f. nov. Flores liguliformi brevissimi 2.5 mm longi 0.5 mm lati, caeterum speciei similis*. HOLOTYPE. Colorado, Boulder Co.: western slope of Davidson Mesa just N of Jefferson Co. line between Marshall and Rocky Flats Atomic Plant, 1800 msm, 10 June 1978, Weber 15375. Additional collections: in neglected lawn, 12th & Baseline, Boulder, 10 June 1978, Weber 15378. Jefferson Co.: meadow above Coal Creek at mouth of Coal Creek Canyon between Rocky Flats and Golden, 10 June 1978, Weber 15378; Rocky Flats Pediment, T2S R70W Sec. 2, 3, 10, 11, 14, 15, 11 June 1973, G. Kunkel & L. Shultz 84.

This distinctive form occupies a large area on the Rocky Flats Pediment. Whether its association with the Rocky Flats Atomic Plant is more than coincidental might be worth cytological investigation. The short ray-flowers, of which the expanded portion is no more than 1.5 mm long, are reflexed over the involucre and practically invisible unless examined at close range. The scapes are stouter and erect, while those of the typical form tend to be weak and sprawling, and the disk is distinctly wider. *F. breviligulatus* produces pure stands and is more conspicuous than the typical form because of the erect habit, larger disks and lack of long white rays to break the color pattern. At the Coal Creek population there were some plants of the long-rayed form and numerous intermediates, but the typical form, at least at this season, was infrequent and inconspicuous. I first noticed the new form in 1964 in Boulder and along Coal Creek. At that time the populations had undergone spray treatment by 2-4-D and I thought the foreshortened rays were a result of this, but the present populations have not been sprayed.

GEUM ALEPPICUM Jacq. *ssp. STRICTUM var. DECURRENS* (Rydb.) W.A. Weber, *comb. nov. Geum decurrens* Rydb., N. Amer. Flora 22:404. 1913.

MIRABILIS GLANDULOSA (Standl.) W.A. Weber, *comb. nov. Quamoclidion multiflorum* (Torr.) Torr. ex Gray *ssp. glandulosum* Standl., Contr. U.S. Nat. Herb. 12:359. 1909. *Mirabilis multiflora* (Torr.) Gray *var. glandulosa* (Standl.) Macbride. *Quamoclidion cordifolium* Osterh. (1928) *non Mirabilis cordifolia* Heimerl (1889). Pilz (1978) includes this taxon under *M. multiflora* as a subspecies but his arguments are not very strong. *M. glandulosa* flowers at a different season, its habit is sprawling, not erect, the blossoms are much larger, the fruits are tuberculate, producing mucilage when wetted, the involucre bracts are obtuse, and the geographic distribution is more northern. Where the two are sympatric in western Colorado (Mesa Co.) they do not intergrade. *M. glandulosa* emits a heavy rose fragrance. By coincidence I happened to be camping in its type locality while doing field work with a zoologist specializing in porcupines. We had to take a porcupine by Caesarean section from the mother on a mesa some ten miles south and were astonished to find that the baby porcupine emitted the identical scent as soon as its fur dried and retained this for several days, a completely unrelated but curious fact.

NEOPARRYA MEGARRHIZA (A. Nels.) W.A. Weber, *comb. nov. Peucedanum megarrhizum* A. Nels., Bull. Torr. Bot. Club 26:130. 1899; *Lomatium megarrhizum* Mathias, Ann. Mo. Bot. Gard. 25:282. 1937. In all characters this species is more closely related to *Neoparrya lithophila* Mathias than to species of *Lomatium*. The mericarp is little flattened, strongly nerved or winged and the lateral margin is hardly more strongly winged than the dorsal ribs,

just as in *Neoparrya lithophila*. The umbels of both species characteristically have rays of uniform length and spreading in all directions, the lower ones downward and outward to form a spherical array. The leaves of *N. lithophila* are simply pinnate except for the lowermost pinnae which are often pinnatifid, and in *N. megarrhiza* they are somewhat narrower and more uniformly bipinnatifid. The leaf dissection is the chief diagnostic feature separating the two taxa. The scattered oil tubes in *N. lithophila* are not sufficiently different from the arrangement in *N. megarrhiza* to justify the weight placed on this character in the literature.

The more obvious relationships of *Neoparrya* seems to be with *Aletes* rather than with *Lomatium*. In both species the foliage odor, a highly characteristic celery type, contrasts with the anise odor of most *Aletes*. NEW TO COLORADO. Grand Co.: on barren black shale slope derived from a lower member of the Pierre Formation beside Colorado Hwy 9 ca. 3 mi SSE of Kremmling; forming large hemispherical mounds to 50 cm diam with 20-30 stems; branched caudex from a thick vertical storage root up to 5 cm diam with odor of sweet carrots or weak turpentine when fresh, 16 Aug. 1975, Weber & Johnston 15146, 7 July 1978, Johnston & Lucas 1786, 25 June 1947, Penland 3564 (COCO). PLATE 1.

RHUS AROMATICA Ait. ssp. **PILOSISSIMA** (Engelm.) W.A. Weber, *comb. nov.* *Rhus aromatica* Ait. var. *pilosissima* (Engelm.) Shinnery, Field & Lab 19:86. 1951. NEW TO COLORADO. Otero Co.: 11 mi S of La Junta on Hwy. 109, 30 April 1963, K. Skelly 8830. Pueblo Co.: abundant along draws in dry sandstone hills, pinyon-juniper area, Greenhorn Valley 3 mi N of Crow, 6000 ft. alt., 2 July 1939, Ewan 11981.

New Colorado Records: Indigenous Species

ASTRAGALUS DUCHESNENSIS Jones, Contr. West. Bot. 13:6. 1910. Moffat Co.; grassy bench at head of Browns Park just NE of Gates of Lodore above Vermillion Creek drainage, 26 June 1965, Weber & Salamun 12648, !D. Isely.

ASTRAGALUS GILVIFLORUS Sheld., Minn. Bot. Stud. 1:21. 1894. Kit Carson Co.: 8 mi N and 3 mi E of Bethune on gravelly prairie knoll with *A. sericoleucus* Gray, 14 June 1972, R. McGregor 24369, !Barneby. A range extension south from the Nebraska Panhandle.

ATRIPLEX DIOICA (Nutt.) Macbride, Contr. Gray Herb. n.s. 53:11. 1918 Rio Blanco Co.: S-facing slope of clay butte with white sandstone caprock just N of Rio Blanco Lake, 42 mi E of Rangely, 1770 msm; dominant on clay slopes, 14 June 1978, Weber & Wingate 15372.

AZOLLA MEXICANA Presl, Abh. Boehm. Gesell. Wiss. V, 3:150. 1845. Sedgwick Co.: High-line Canal road at Cottonwood Creek, 1.5 mi E of Logan Co. line, 1130 msm, 10 June 1978, Wilken 13314 (CS). Yuma Co.: along Hwy 34 ca. 2 mi W of Wray along Republican River, 1090 msm, 10 June 1978, Wilken (CS).

BUPLEURUM AMERICANUM C. & R., Rev. N. Am. Umbel. 115. 1888. La Plata Co.: Needle Mountains, 3900 msm, near Trimble Pass, S edge of Upper Vallecito Basin, 1.2 mi S of Columbine Pass, T38N R7W, on granitic substrate, *Salix arctica* community, 20 July 1978, D. Buckner, COLO 321715. This record represents the southernmost known locality on the North American continent and a range extension southward from Wyoming.

CAREX EXSICCATA L.H. Bailey, Mem. Torr. Bot. Club 1:6. 1889. Routt Co.: vicinity Little Snake River at Three Forks Ranch N of Columbine, 26 July 1951, Weber 7040. Grand Co.: Muddy Creek drainage, T4N R81W, between Rabbit Ears Pass and Kremmling, in bottom of old ox-bow, *Carex-Juncus* marsh, 18 July 1973, T. Giese 681.

CHRYSOETHAMNUS NAUSEOSUS ssp. *LEIOSPERMUS* (A. Gray) H.M. Hall, Phylogenetic Method in Taxonomy 217. 1923. This race, characterized by its low stature, glabrous phyllaries and glabrous achenes, extends into western Colorado from its main area in Utah and Nevada. Moffat Co.: Morrison Formation S of Blue Hill, Irish Canyon Quadr., T10N R101W, Sec. 11, 6600 ft. alt., 2 Sept. 1970, Weber 14242; Rio Blanco Co.: white shale slopes, gap through Raven Ridge 3 mi W of junction Rangely-Dinosaur road with Bonanza road, 1700 msm, 15 June 1978, Weber & Wingate 15393; Montezuma Co.: between Risley Canyon and Yellow-jacket Canyon ca. 18 mi W of Cortez, 6150 ft. alt., 24 Aug. 1977, J. Ratzloff COLO 316069.

CRYPTANTHA CAESPITOSA (A. Nels.) Payson, Ann. Mo. Bot. Gard. 14:281. 1927. NW Moffat Co.: NW face of gypsum hill beside Moffat Co. Hwy 116, T11N R101W Sec. 16, with *Astragalus aretioides*, 2100 msm, 30 May 1972, MacLeod 1109. This range extension from southern Wyoming into northern Colorado was anticipated by Harrington (1954).

CRYPTANTHA ROLLINSII I. M. Johnston, J. Arn. Arb. 20:391. 1939. Rio Blanco Co.: white shale slope, gap through Raven Ridge 3 mi W of junction Rangely-Dinosaur road with Bonanza road, 1700 msm, with *Eriogonum ephedroides*, *Phacelia incana*, *Mirabilis alipes*, 15 June 1978, Weber & Wingate 15391.

CYMOPTERUS PETRAEUS Jones, Contr. West. Bot. 8:32. 1898. Moffat Co. Dinosaur National Monument; common in drainage lines on rocky bench along trail to the scenic overlook at Gates of Lodore, 10 June 1967, Weber 13063.

DRABA BOREALIS DC., Syst. Nat. 2:342. Park Co.: in cold snow—runoff streams on south side of Hoosier Ridge, with *Eutrema penlandii*, 10 July 1959, Hultén & Weber 11042. Summit Co.: valley of Monte Cristo Creek just N of Hoosier Pass, on steep slopes, tundra above Blue Lake dam, 11500 ft. alt., 12 July 1969, Weber COLO 239899, G. A. Mulligan.

DRABA JUNIPERINA Dorn, Madroño 25:101. 1978. Moffat Co.: on steep slope, consolidated talus under *Pinus edulis-Juniperus osteosperma*, Harpers Corner, Dinosaur National Monument, 2 June 1956, Weber & Welsh 9629; Irish Canyon between Greystone and Sparks, T10N R101W, Sec. 34, 6000 ft. alt., 2 Sept. 1970, Weber 14275.

DRABA PECTINIPILA Rollins, Rhodora 55:231. 1951. Gunnison Co.: steep W-facing talus slope of Point 12366 above Virginia Basin, T12S R86W Sec. 26, near Gothic, 12300 ft. alt., with *Senecio werneriaefolius*, *Draba*, *Oxytropis podocarpa*, *Smelowskia calycina*, 30 June 1977, B.C. Johnston 1273. These plants with white flowers and doubly pectinate trichomes on the fruit valves were found in a zone between the slope and tundra forms of *D. oligosperma*, a comparable situation to that at the type locality on Clay Butte, Wyoming.

DRABA PORSILDII G.A. Mulligan, Can. J. Bot. 52:1795, fig. 8, 18[map]. 1974. Summit Co.: tundra and loose rock slides, N slope of Hoosier Ridge, 12000-12700 ft. alt., 1-2 mi E of Hwy over Hoosier Pass, 24 July 1948, Weber 4286, !Mulligan.

DROSERA ROTUNDIFOLIA L., Sp. Pl. 281. 1753. Gunnison Co.: acid iron bog at base of Mt. Emmons, 2700 msm, 3 mi W of Crested Butte along Kebler Pass road; growing in *Sphagnum fuscum* bog, 23 July 1978, W. & D. Kaemmerer, J. Lanier-Olmsted COLO 318660. This record represents the southernmost occurrence in the western interior of North America and a range extension south from Montana. The collection was made incidental to environmental studies for AMAX, Inc.

ERIGERON GRANDIFLORUS Hook., Fl. Bor. Amer. 2:18. 1834. The following specimens were annotated by Stephen Spongberg as belonging to this, which he describes as the southern alpine race of a complex of apomictic triploid biotypes comprising the taxon cited. Clear Creek Co.: Grays Peak, July 1888, Eastwood, Summit Lake, Mt. Evans, 12500 ft., 27 July 1966, L. Snyder 11108; tundra ridge N of summit Loveland Pass, 11 July 1954, Weber COLO 85588. El Paso Co.: Windy Point, Pikes Peak, 12000 ft., 13 July 1940, Alpine Laboratory. Gunnison Co.: Cottonwood Pass, 19 July 1963, C. Loder 1BF. Gilpin Co.: Stewart Lakes near Tolland, 31 July 1918, Ramaley 11467, Yankee Doodle Lake, 26 July 1916, Ramaley 10717. Lake Co.: Independence Pass, 17 July 1952, P.D. Green 359. La Plata Co.: Chicago Basin, E of Mt. Eolus, 13100 ft. alt., 21 Aug. 1961, J. Michener 72.

ERIGERON KACHINENSIS Welsh & Moore, Proc. Utah Acad. 45:231-232. 1968. Montrose Co.: San Miguel Resource Area, B.L.M.; secluded tributary of the Dolores River between Slick Rock and Bedrock, 1560 msm, 29 April 1978, J. Ratzloff 107. Four populations have been discovered. The cited collection was intimately associated with a "cave" or "hanging garden". All sites were characterized by moist sandy soil fed by water seeping from the cliffs or overhangs above. Collections of flowering material have been made in April and August. A few plants show some rayless heads. Welsh and Moore did not mention the fact that the ray-flowers characteristically reflex over the involucre upon wilting or maturation and that the plants may be distinctly stoloniferous. PLATE 2.

ERIOGONUM SCABRELLUM Reveal, Ann. Mo. Bot. Gard. 55:74. 1968. Montezuma Co.: bluffs above the north bank of San Juan River just NE of Four Corners, 12 June 1949, Weber 4810, !Reveal.

HERRICKIA HORRIDA Woot. & Standl., Contrib. U.S. Nat. Herb. 16:186. Pl. 50. 1913. *Aster horridus* Blake, J. Wash. Acad. Sci. 27:379. 1937. Las Animas Co.: Lake Maloya watershed, East Schwachheim Canyon, 0.7 mi NW of upper end of Lake Dorothy, 2450 msm, dry sandy slope, semiclear, no ground cover, E exposure, 31 Aug., 7 Sept., 5 Oct. 1975; Segerstrom Canyon, 1.6 mi ENE from west end of Lake Maloya on SW slope of Gobblers Roost, 2450 msm, 24 Aug. 1975, J.H. Robertson, 1, 2, 3, 4, 6. *Herrickia* seems to be as well separated from *Aster* proper as *Machaeranthera* and *Xylorhiza* and is maintained here as a distinct monotypic genus endemic to northern New Mexico and adjacent Colorado south of the summit of Raton Pass.

MAHONIA HAEMATOCARPA (Woot.) Fedde, Bot. Jahrb. 31:100. 1901. The record is a specimen collected by a Miss Archibald, 1902, without locality data written in her hand, but with a pencilled notation on the label in Cockerell's hand, "south of Trinidad, Colo." The species is common in New Mexico from the Sandia Mountains southward and might well occur south of the divide of Raton Pass. This report must be considered tentative but we give it to stimulate collectors to work in this little-collected area of southern Colorado.

MIMULUS EASTWOODIAE Rydb., Bull. Torr. Bot. Club 40:483. 1913. Delta Co.: Escalante Canyon, in "hanging garden" on roof of large cave of Wingate Sandstone at Cottonwood Spring, 7 Sept. 1975, Weber & Steward 15244. Montrose Co.: tributary of Dolores River near junction of Little Gypsum Creek and Dolores River, 5150 ft. alt., on vertical sandstone walls, 30 Aug. 1977, J. Ratzloff 220/95.

MIRABILIS ALIPES (S. Wats.) Pilz, Madrono 25:120. 1978. *Hermidium alipes* S. Wats., Bot. Kings Exped. 286, f. 32. 1871. Rio Blanco Co.: white shale slope, gap through Raven Ridge

3 mi W of junction Rangely-Dinosaur road with Bonanza road, 1700 msm, with *Eriogonum ephedroides* and *Phacelia incana*, 15 June 1978, Weber & Wingate 15388.

PELLAEA TERNIFOLIA (Cav.) Link var. *WRIGHTIANA* (Hook.) A.F. Tryon, Ann. Mo. Bot. Gard. 44:153. 1957. Baca Co.: Holt Canyon, 10 mi W and 7 mi S of Campo, 8 Sept. 1972, M.L. Howard COLO 275242, Picture Canyon, 9 mi W and 4 mi S of Campo, 9 Sept. 1972, M.L. Howard COLO 275230. A range extension northward from Texas.

PENSTEMON UTAHENSE Eastwood, Zöe 4:124. 1893. Mesa Co.: 1 mi NW of Gateway, 5000 ft. alt., 7 May 1966, Rohrbach 8 (CS), along Hwy 141, 11.5 mi S of Gateway, 1450 msm, 27 May 1976, Wilken et al 12637 (CS). Montezuma Co.: slopes of Cannonball Mesa above McElmo Creek 10 mi E of Utah State line, 8 May 1974, G. Kelly COLO 277638.

PHACELIA INCANA Brand, Beitr. z. Kenntn. d. Hydrophyll. 8. 1911. Rio Blanco Co.: white shale slope, gap through Raven Ridge 3 mi W of junction Rangely-Dinosaur road with Bonanza road, 1700 msm, with *Eriogonum ephedroides* and *Hermidium alipes*, 15 June 1978, Weber & Wingate 15387, !Barneby. An ephemeral spring annual to be compared with *P. ivesiana* but with entire or slightly toothed oval leaves and reticulate, deeply pitted seeds. The corollas are minute and deciduous. Previously known from Utah and Wyoming.

PHACELIA INTEGRIFOLIA Torr. Montezuma Co.: Four Corners, above the San Juan River, 5000 ft. alt., 16 May 1964, J. Erdman & J. Watson, !D. Atwood.

POTENTILLA OVINA Macoun, Can. Rec. Sci. 6:464. 1896. Boulder Co.: E slope Buchanan Pass, 11200-11600 ft., 11 July 1972, Komarkova COLO 262618, Niwot Ridge, 11000-12600 ft., 28 Aug. 1971, Komarkova COLO 262794. Gilpin Co.: slope of cirque in NE side of James Peak, 12000 ft., alt., 4 July 1972, Komarkova COLO 262381. Summit Co.: Ten Mile Range, NE slope of Peak Ten, 3900-3990 msm, 31 July 1973, Komarkova COLO 274445. Larimer Co.: Flattop Trail between Emerald View and Glacier View, 11700 ft. alt. in dry fellfield, 11 July 1961, Willard 61140, !B. C. Johnston.

RIBES ODORATUM Wendland f. in Bartling & Wendland, Beitr. z. Bot. 2: 15. 1825. Boulder Co.: 17th Street bridge, Boulder, 14 May 1915, A.J. Evans '16, 23, common on N-facing slope above Boulder Creek along trail, 19th Street on N edge of University campus, 12 May 1974, Weber 15090.

RUBUS IDAEUS L. ssp. *SACHALINENSIS* var. *PERAMOENUS* (Greene) Fern., Rhodora 21:98. 1919. Routt Co.: just S of Steamboat Springs on Howelson Hill in mixed coniferous forest on N-facing slope, T6N R84W Sec. 17, 19 July 1972, J. Bunin COLO 275893.

SELAGINELLA SELAGINOIDES (L.) Link, Fil. Sp. Hort. Berol. 158. 1841. Jackson Co.: moist streambank along Bear Creek, 9500 ft. alt., 106° 36'W, 43° 0'N, Routt National Forest along trail from Ute Pass-Grizzly Creek trail, 2 Sept. 1978, D. Wilken. Unfortunately the plants were transferred to the greenhouse and later lost before a voucher collection was made. However, this range extension is important and the identification correct so we are reporting it here. Vouchers will be deposited in CS and COLO during the 1979 field season without fail.

SPIRAEA DOUGLASII Hook. var. *MENZIESII* (Hook.) Presl, Epimel. Bot., p. 195. 1849. Routt Co.: Clark Sawmill, N of Steamboat Springs on road to Hahns Peak; in the sawmill

yard, not definitely known as to whether or not an escape from cultivation, 15 July 1966, W. Stevenson COLO 208938.

TRIFOLIUM KINGII S. Wats., Bot. Kings Exped. 5:59. 1871. Montrose Co.: Uncompahgre Nat. For., Love Mesa road, T49N R15W Sec. 20, 9400 ft. alt., in aspen type, 10 Aug. 1949, H.F. Harlan 30, !D. Isely.

New Colorado Records: Adventives

AGROSTEMMA GRACILIS Boiss., Diagn. Pl. Orient. Nov. 3(1):80. 1853. Boulder Co.: a spontaneous waif in a garden between 5th and 6th Street and Concord, Boulder, 16 June 1975, Weber 15118. This had persisted for a number of years at the site. Petals large, pink, whitish toward the base, with lines of black spot-streaks on the limb. Native in Asia Minor and Greece.

AILANTHUS ALTISSIMA (Mill.) Swingle, J. Wash. Acad. Sci. 6:495. 1916. Thoroughly naturalized in Colorado cities and towns as a consequence of urbanization. Following are only the earliest of our collections Boulder Co.: various localities in City of Boulder, 25 June 1938, Ewan 11401, 19 Aug. 1941, Ewan 13848, Sept. 1943, Ewan 15521.

ARCTIUM LAPPA L., Sp. Pl. 816. 1753. Ouray Co.: plentiful weed in abandoned lots, Main Street, Ouray, 9 Sept. 1972, F.J. Hermann 24971.

ASTRAGALUS CICER L., Sp. Pl. 757. 1753. Boulder Co.: in grass parking along 17th Street and Canyon Blvd.; surviving remnant of a legume garden maintained by S.B. Detwiler some 20 years ago, source unknown, 14 June 1978, R. Wittmann COLO 322941. Rio Blanco Co.: 7 mi from Piceance Basin road, near CSU Piceance Basin Intensive Study Site, 12 Aug. 1978, M. Wertheimer COLO 318673.

ASTRAGALUS FALCATUS Lam., Encycl. 1:310. 1783. BOULDER CO.: in grass parking along 17th Street and Canyon Blvd.: surviving remnant of a legume garden maintained by S.B. Detwiler some 20 years ago, source unknown, 10 June 1978, Weber 25359.

BROMUS HORDEACEUS L. *ssp. HORDEACEUS*, Sp. Pl. 77. 1753 (incl. *B. mollis* L.). Moffat Co.: 6 mi SW of Greystone on NE-facing slope of Douglas Mountain, in shade of aspen with sagebrush, 7500 ft. alt., 28 June 1967, M. MacLeod 721. We follow Hylander (1953) for the nomenclature, and Scholz (1970) for the taxonomy of this group.

BROMUS SQUARROSUS L., Sp. Pl. 76. 1753. Boulder Co.: roadside ditch ca. 4 mi N of Boulder on foothills highway, 5000 ft. alt., 9 July 1962, R. Watkins 18.

CENTAUREA JACEA L., Sp. Pl. 914. 1753. Garfield Co.: Glenwood Canyon at Grizzly Creek, 2.8 mi E of No Name, 6000 ft. alt., 26 May 1977, D. Wilken 12928 (CS).

CENTAUREA MACULOSA Lam., Encycl. 1:669. 1783. Jefferson Co.: Pine Park Estates SE of Evergreen, T5S R70W Sec. 20; stand covered more than a square mile and is abundant along road for several miles east and west; forms with white and purple rays occur intermixed, 26 July 1976, R. White COLO 310286.

CIRSIUM INCANUM (S.G. Gmel.) Fisch. ex MB, Fl. Taur.-Cauc. 3:561. 1819. *C. arvense beta incanum* Ledeb., Fl. Ross. 2:735. 1846. This taxon has been passing for a form of

C. arvense with shallowly toothed or pinnatifid leaves strongly tomentose beneath. It differs from the shallowly-toothed and -lobed *var. mite* Wimm. & Graebn. in its tomentose leaf undersurface. *C. incanum* is native in SE Europe and SW Asia (cf. Fl. USSR 28:211-215. 1963).

CORONILLA VARIA L., Sp. Pl. 743. 1753. Boulder Co.: along Table Mesa Drive on ditch bank. locally abundant, 2000 msm, 17 June 1974, U. Lanham COLO 278103. Ouray Co.: gravelly embankment of Box Canyon road in open woods, 2375 msm, 9 Sept. 1972, F.J. Hermann 24970.

ELEAGNUS PARVIFOLIA Royle, Illustr. Bot. Himal. 323, t. 61, f. 1. 1836. Boulder Co.: escaped from cultivation and locally established along diagonal hwy. NE of Boulder at Gunbarrel crossing, 27 Oct. 1975, Weber COLO 288680. Some authors make this a variety of *E. umbellata* L. Here we follow Bailey's Standard Cyclopedia of Horticulture.

ELEAGNUS ORIENTALIS L., Mantissa Pl. 41. 1767. *E. angustifolia* L. *var. orientalis* Dipp. Boulder Co.: thoroughly naturalized, N slopes at base of talus slides, bottom of Gregory Gulch (probably spread by jays from the adjacent urban area), 2000 msm, 19 June 1973, Weber 15004. Mesa Co.: along cliff base, entrance highway, Colorado National Monument, Fruita entrance, 16 May 1954, Weber COLO 83443, !F. G. Meyer. Whether this is really distinct is questionable. Sucker shoots from *E. angustifolia* have very broad large rounded bicolored leaves similar to those of *E. orientalis*. For the time being we follow Flora USSR 15:390-392. 1974 where the taxon is treated as a species.

EUPHORBIA MYRSINITES L., Sp. Pl. 461. 1753. Boulder Co.: 1 mi ENE of Eldorado Springs, 5700 ft. alt., locally abundant as an established escape from cultivation on 1.5 acres of sandy soil along South Boulder Creek, 3 April 1972, U. Lanham COLO 257044. Jefferson Co.: 26th and Queen Streets, Lakewood, May 1977, W. Eisenlohr COLO 306980.

FALLOPIA AUBERTII (L. Henry) Holub, Folia Geobot. Phytotax. 6:176. 1971 (*Polygonum baldshuanicum* auctt. non Regel), *Polygonum aubertii* L. Henry, Rev. Hort. 82-83. 1907. Boulder Co.: Euclid at 15th St., Boulder, 25 June 1938, Ewan 11408 (then a cultivar) but now established in several places in the Boulder Valley and in Denver. City of Denver. Along Cherry Creek between Arapahoe and University Ave., 19 June 1975, D. Buckner COLO 287963. Boulder Co.: escaped from cultivation, Boulder, climbing over old fences, vines massive and with much old wood hidden by the young growth; fls. white, polygamo-monoecious, 11 July 1975, Weber 15125.

GERANIUM COLUMBINUM L., Sp. Pl. 682. 1753. Boulder Co.: Lafayette, a weed in fields, 29 June 1973, I. Siegrist COLO 269696.

IBERIS AMARA L., Sp. Pl. 649. 1753. Douglas Co.: flat on road to Roxbury[ough] Park, Wolhurst, 19 Sept. 1919, R.P. Duthie 561.

ISATIS TINCTORIA L., Sp. Pl. 670. 1753. Grand Co.: roadside, N end of Middle Park 5 mi

S of Muddy Pass, 25 June 1975, Weber 15120. Shortly after this collection was made, the small population was eradicated by county weed control crews.

KNAUTIA ARVENSIS (L.) T. Coulter, Mem. Dipsac. 41. 1823. Routt Co.: disturbed roadside ditch and prairie 0.3 mi W of junction roads 16 and 18A, Stagecoach, 2250 msm, T3N R84W Sec. 6, 10 Aug. 1972, B. Smith et al 8722.

LATHYRUS LATIFOLIUS L., Sp. Pl. 733. 1753. Boulder Co.: Boulder, escaped from gardens, 16 June 1953, Weber COLO 73705. Widely established along canyon roads throughout the Boulder area and elsewhere along the Front Range.

LYTHRUM SALICARIA L., Sp. Pl. 446. 1753. Jefferson Co.: around a pond at high water line between cattail zone and grassy meadow, W of Hampden and Quincy, South Denver, July 1978, R.F. Harner COLO 318898.

NYMPHAEA ODORATA Solander in Ait., Hort. Kew. ed. 1, 2:227. 1789. Larimer Co.: Shields Ponds, Poudre R. between Fort Collins and La Porte, 15 Sept. 1973, R. Budzinski CS 7535. Otero Co.: Ryans Ponds along Arkansas River NE of Rocky Ford, 3 Oct. 1975, D. Hess CS 7534. Both of these colonies are evidently of very long standing.

PANICUM GYMNOCARPON Ell., Bot. S.C. and Ga. 1:117. 1816. Bent Co.: near McClave, 3700 ft. alt., 13 July 1961, G. Zonitch CS 42841.

PAPAVER CROCEUM Ledeb., Fl. Altaica 2:271. 1830. *P. nudicaule* Hort. non L. *fide* Hanelt, Kulturpfl. 18:73-88. 1970. Park Co.: Mosquito Pass, 3350 msm; roadside above timberline just beyond London Mine, probably escaped and persisting from old mine gardens or from cultivation in nearby Fairplay, 14 July 1967, Weber 13351.

POLYGONUM ARGYROCOLEON Steud. ex Kunze, Linnaea 20:17. 1847. Moffat Co.: Irish Lakes, 2000 msm, at upper end of Irish Canyon, T10R 101W Sec. 10, in drying mud of lake bottom, 2 Sept. 1970, Weber 14236.

SILENE DICHOTOMA Ehrh., Beitr. z Naturkunde 7:143. 1792. Gunnison Co.: Robinson Basin, 30 mi N of Gunnison, 8 mi W of Crested Butte, 2 mi N of Kebler Pass; dry meadow, 10800 ft. alt., 2 July 1967, D. Bathke 265.

SOLANUM CAROLINENSE L., Sp. Pl. 187. 1753. Boulder Co.: a weed in discarded planter boxes behind apartments at Walnut and 19th Streets, Boulder, locally abundant, 4 Aug. 1975, Weber 15135.

SOLANUM DULCAMARA L., Sp. Pl. 185. 1753. Delta Co.: 2.3 mi E of Delta city center, 5000 ft. alt., 6 July 1968, B.A. Howard 54, Cedaredge, 30 June 1952, Walker (all in herb. Western State College).

TAMARIX PARVIFLORA DC., Prodr. 3:97. 1828. Baca Co.: depleted pasture, Sand Arroyo 2 mi S of Walsh, T31S R43W Sec. 16, 5 May 1949, Weber 4564. Flowers 4-merous, the spikes on wood of previous season, stamens from the ends of the disk lobes.

VERBASCUM PHLOMOIDES L., Sp. Pl. 1194. 1753. Jefferson Co.: outer foothills between Golden and Morrison at Heritage Square, along roadside, 24 July 1974, Weber, Kunkel & Munger 15095. Harrington (1954) stated that the species was reported for Colorado but gave no source for the record.

Re-evaluations and Reinstatements

ARTEMISIA MICHAUXIANA Besser in Hook., Fl. Bor. Amer. 1:324. 1833. Harrington (1954) noted that the species was reported for Colorado. Weber (1966) located the specimen and suggested that it represented *L. ludoviciana* ssp. *incompta* (Nutt.) Keck, a view also held by Keck. However, recent collections are more convincing in favor of *A. michauxiana*. Hinsdale Co.: 1 mi below summit Engineer Pass just S of jeep road from Lake City, 3596 msm, 17 Aug. 1976, J. Ratzloff 46/153; Mesa Seco, 12000 ft. alt., 15 July 1967, K. Johnson J67-51. Custer Co.: Sangre de Cristo Mts., talus slope above ponds below Horseshoe Lake, Aug. 1976, G. Schooley COLO 288835. Conejos Co.: steep SE-facing grassy slopes above waterfall, below conglomerate cliffs, N Fork Rio Chama, 3250 msm, 12 July 1976, B.C. Johnston 391. While Keck (1946) doubted that the disjunct southern populations could belong to this species, this material shows no morphological deviation from typical material from Montana and northward. The capituli are almost glabrous with extremely broad erose often purplish phyllaries and the flowers are usually purplish as well. Keck's key considered only leaf form, which is variable in the direction of narrow-lobed races of *A. ludoviciana*. Chromosome studies suggested by Keck to be of value in the ultimate disposition of the problem have not been made.

ATRIPLEX VIRGATA Osterhout, Bull. Torr. Bot. Club 53:35. 1926. This taxon was described from Colorado but was not evaluated by Harrington (1954). It should be placed in synonymy under *A. rosea* L. Osterhout's basis for the species was the lack of facial appendages on the bracts, the type otherwise agreeing with *A. rosea*. Actually the type collection displays many ripe fruits and several of them have one or two sharp tubercles. Descriptions indicate that considerable variability must be allowed in this character.

CLEMATIS SCOTTII Porter in Porter & Coulter, Syn. Fl. Colorado, 1. 1874. This taxon is a good species and did not deserve to be summarily reduced to varietal status under *C. hirsutissima* Pursh by Erickson (1943). *Clematis hirsutissima* is erect, with fascicled stems and ascending leaves with straight rachises. The leaves, with very few exceptions (cf. Payson & Armstrong 3365, from Lincoln Co., Wyo., a mixed collection with narrow or very broad leaflets) are narrow and usually strongly pubescent. The flowers are short-cylindric, slightly broadened at the base with prominent apical lobes not strongly bordered by white tomentum. *Clematis scottii* is a sprawling decumbent herb with widely divergent stems and divaricately spreading leaves with a sigmoid-arcuate leaf-rachis. The leaves have broadly elliptic-ovate, glaucous and sparsely long-pilose leaflets. The flowers are short-turbinate with a very broad base and very small recurved tepal apices with a very prominent border of white tomentum. Erickson did not consider the differences in floral shape although many species of *Clematis* have distinctive floral shapes. Two color plates in Rickett (1973) illustrate the differences between *C. hirsutissima* (Plate 54, lower right-hand figure by Blecher) and *C. scottii* (Upper right-hand figure by Schooley).

DICORIA BRANDEGEI Gray, Proc. Amer. Acad. 11:76. 1876. The record of this species is the Brandegee collection at NY, No. 1170 from "sands of R. San Juan near Utah line, SW Colorado, 1875". The species becomes common along the river in Utah, but has not been taken again in Colorado. The specimen cited is one branchlet six inches long.

FESTUCA SCABRELLA Torr. in Hook., Fl. Bor. Amer. 2: 252. 1840. I erred (Weber 1961) in suggesting that *F. hallii* (Vasey) Piper [*F. scabrella* ssp. *hallii* (Piper) W.A. Weber] is the only member of the *F. scabrella* group occurring in Colorado. Harrington's report (1954) of *F. scabrella* from Huerfano County at 11,250 ft. and from Custer County at 8500 ft. was correct, and his description certainly applies to the species proper and not to the rhizomatous

F. hallii. I recently had the opportunity of seeing the species in the field (Huerfano Co.: Apishapa Pass, 3340 msm, 6 July 1978, Weber & Wingate 15442). It occurs sparsely on a grassy saddle along the trail from the pass toward West Spanish Peak. The saddle is dominated by *Trifolium attenuatum* Greene and *Festuca arizonica*, various species of *Carex* and sub-alpine perennials and appears to have had a history of overgrazing and recovery. The few large bunches of *F. scabrella* are best developed in deep loose soils churned up by gophers. The dense bunches lacking any rhizome development, the very high reddish leaf sheaths, long and tightly involute blades and large heavy spikelets easily distinguish *F. scabrella* from *F. hallii*. It is not impossible that *F. scabrella* might have been introduced for range restoration.

KOCHIA SIEVERSIANA (Pall.) C.A. Mey. in Ledeb., Fl. Altaica 1:415. 1829. This is the common *Kochia* in Colorado and probably the most abundant late summer weed along the base of the Front Range. Weber (1966) reported this as *K. iranica*, but the treatment of *Kochia* in Fl. USSR VI clearly shows that this was incorrect. The flowers of *K. iranica* are permanently tomentose while our plants have flowers which are glabrous at maturity except for a marginal fringe of trichomes. *K. sieversiana* differs from *K. scoparia* (L.) Schrad. in having the inflorescence dense rather than remotely-flowered and the flowers are enveloped in tufts of long trichomes giving the whole inflorescence a woolly-tomentose appearance. The species occurs naturally in southern Siberia, Mongolia and western China.

LAPPULA DIPLOLOMA (Schrenk ex Fisch. & Mey.) Guerke in Engler, Nat. Pflanzenfam. IV, 3a:107. 1893. *Echinosperrum diplomoma* Schrenk ex F. & M., Enum. Pl. nov. a cl. Schrenk lect. 1:36. 1841. This is suggested as an earlier name for an American and Siberian taxon that has had an extraordinary nomenclatural history and synonymy in American treatments. *Lappula texana* Britt., based on *Echinosperrum texanum* Scheele (1852) and a long list of Greene names were enumerated most recently by Cronquist (1959) who considers all of them synonymous within a highly polymorphic concept of *Lappula redowskii* (Hornem.) Greene. *L. diploloma* is treated and figured in Flora USSR 19:313-315, Plate XX:3. We have not examined authentic material. In the event that we are not correct in assigning this name to the American plant, the name it should take would be *L. texana* (Scheele) Britt.

Over many seasons of observing this complex in the field the senior author has become convinced that, regardless of the difficulty of determining some herbarium specimens, there are two distinct entities in the field that are clearly separable. The first, *L. diploloma* (or *L. texana*) is a vernal species of steppe-desert, flowering very early in the spring on sites that become very arid. This plant is characterized by having its primary stem suppressed and replaced by several elongate stems from near ground level that are essentially unbranched and bear flowers in almost every leaf-axil. The mature nutlets are provided with inflated margins resembling old-fashioned horse-collars. The second, *Lappula redowskii*, is an aestival species of more mesic sites and higher altitudes, blossoming through the summer. This plant characteristically has a main stem which produces radiating branches from the upper portion, the flowers being limited to these branches. The mature nutlets are not provided with highly inflated margins. Interspecific hybridization may be responsible for some of the confusion in herbaria, but extensive intergradation has not been observed in the field.

The Russian *L. diploloma* is said to have nutlets that separate with difficulty, while the American plants have normally separating mature nutlets. In other respects the description of the Russian species seems to match ours.

RANUNCULUS OROGENES Greene, Plantae Bakerianae 3:2. 1901. The type of this taxon was collected by C.F. Baker in 1901 from Cerro Summit above Cimarron. Benson (1948) discussed its obvious close relationship with *R. glaberrimus* Hook. var. *ellipticus* Greene but

surprisingly placed the species in different sections of the genus! It is difficult to find a valid distinction between them. In Benson's comparison table, the characters overlap or the measurements of one are encompassed by the range of the other. He gives the receptacle of *glaberrimus* in the table as glabrous, but in the description on page 167 he says "usually finely pubescent". The only character that remains to separate the two after comparing the table point by point is the allegation that the cauline leaves are parted in *glaberrimus* and entire in *oreogenes*. The senior author visited the type locality to observe *R. oreogenes* and found the area dominated by nothing but *R. glaberrimus* var. *ellipticus*. I conclude that the two taxa are synonymous.

Benson gives what he has called *R. oreogenes* a geographical range replacing that of *R. glaberrimus ellipticus* southward in southern Utah, Arizona and New Mexico. If the southern populations are distinct from *glaberrimus* the name that they should take is *R. collomae* Benson.

Rejections

CAREX BIGELOWII Torr. & Schwein. Hermann (1970) continues to list this species as being present in Colorado as well as Utah, Idaho and Wyoming. All the specimens we have been able to examine belong either to *C. scopulorum* or some related species. *C. bigelowii* has an Amphio-Atlantic distribution. According to Raymond (1951) discussed by Hultén (1958), it "occurs in Eurasia from Spitzbergen, Iceland and Scotland eastward to Jana River and also in the Alps, and in America from Greenland to the west coast of Hudson Bay." It would be very unlikely for a species with this characteristic distribution to be found in the southern Rocky Mountains.

CAREX ROSTRATA Stokes in Withering, Bot. Arr. British Plants ed. 2: 1059. 1787. This name has been erroneously applied to *C. utriculata* Boott, a common Rocky Mountain and western North American species, by Mackenzie, Fernald and subsequently almost every author dealing with western plants. *Carex rostrata* is a plant of oligotrophic bogs (pH between 4.5 and 6.5 according to Jermy and Tutin [1968] p. 90). The leaves are typically revolute and glaucous. It has a distinctly Amphiatlantic distribution. *C. utriculata* is a plant of eutrophic wetlands with pH neutral or nearly so abundant along streams, ponds and beaver-dams in the mountain west. Its leaves are typically broad, green, and plicate.

The confusion may have begun with Mackenzie's treatment of *Carex* (1935) in which he lumped all North American material in the group under *C. rostrata*, saying, "This is one of the most widely distributed and most frequently collected of our sedges. Variations in vegetative characters in individual specimens are often marked, but are of no systematic value." Fernald (1942) added to the confusion when he concurred although he admitted that "very little North American material is satisfactorily identified with true *C. rostrata* Stokes, (*C. ampullacea* Gooden.), the 30 fat covers of North American material (fully 750 sheets) in the Gray Herbarium yielding only 29 numbers which can be forced into the typical European form of the species, these all from high-northern, alpine, subalpine or bleak habitats in Labrador, Newfoundland, eastern Quebec, northern Nova Scotia, northern New Brunswick, northern Vermont, northern Michigan, Lake Athabaska, Mackenzie and Alaska, with a slightly thicker spiked series, often with broader leaves, at high altitudes to Colorado and California . . ."

Fernald was familiar in the field with *Carex rostrata* in the east, but neither he nor Mackenzie had field experience with it in Europe, nor with the western species *C. utriculata*. European botanists visiting the Rocky Mountains are astounded that the western plant has been passing as *Carex rostrata*. The senior author's field experience in northern Europe confirms their opinion.

MELAMPODIUM STRIGOSUM Stuessy, Rhodora 74:51. 1972. Stuessy reports this species

from Chaffee County, Colorado. The species is Mexican, barely getting into southeastern Arizona. An extralimital report such as this should have been more closely investigated. The specimen in question is said to have been collected in Chaffee County, Buena Vista, Jones s.n. (POM). The Pomona specimen has no further data, and no date of collection. In view of the highly dubious character of the record coupled with the discordant distribution pattern it poses, we feel that this record should be ignored.

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